

**UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, DC 20554**

**COMMISSION SEEKS COMMENT )  
ON EMERGENCY COMMUNICATIONS )  
BY AMATEUR RADIO )  
AND IMPEDIMENTS TO AMATEUR )  
RADIO COMMUNICATIONS )**

**Docket No. 12-91**

**Date: May 14, 2012**

**Comments of: Robert Witte, K0NR**

Thank you for the opportunity to comment on Docket 12-91. These are my individual comments to the Commission based on over 30 years of amateur radio operating, including participation in Amateur Radio Emergency Service (ARES), Radio Amateur Civil Emergencies Service (RACES), emergency communications and public service activities. My education background includes a Masters Degree in Electrical Engineering and I have decades of experience in the communications electronics industry.

**FCC Item 1. Importance of emergency Amateur Radio Service**

**communications.** As noted above, the statute requires a review of the importance of emergency Amateur Radio Service communications relating to disasters, severe weather, and other threats to lives and property.

**A. The contributions of amateur radio operators during disasters and emergencies is substantial and well documented.** One of the most notable incidents was Hurricane Katrina in 2005:

[http://www.msnbc.msn.com/id/9228945/ns/technology\\_and\\_science-wireless/t/ham-radio-operators-rescue-after-katrina/](http://www.msnbc.msn.com/id/9228945/ns/technology_and_science-wireless/t/ham-radio-operators-rescue-after-katrina/)

In 2002, the largest wildfire in recorded history hit my state of Colorado. The Hayman Fire response was aided greatly by the help of radio amateurs:

[http://urgentcomm.com/news/radio\\_radio\\_amateurs\\_muster/](http://urgentcomm.com/news/radio_radio_amateurs_muster/)

On a much more frequent basis, radio amateurs provide communications support for blizzards, tornados, thunderstorms, earthquakes and more.

**B. The key attributes that make the Amateur Radio Service so valuable in an emergency or disaster situation** include:

- 1) The large number of trained operators available, along with a number of organizations that provide training and organizational structure: ARES, RACES, Skywarn
- 2) The tendency for many amateur radio operators to prepare their stations for emergency operating conditions, such as the loss of commercial power.
- 3) The high degree of flexibility due to the wide range of spectrum and emission types available. Amateur radio operators can select frequencies on the HF bands, VHF bands, UHF bands, etc. depending on the circumstances of the incident and the communication requirements. Similarly, a wide variety of emission types are available, ranging from CW (the most basic form of transmission), to FM VHF repeater systems to advanced digital communication formats. No other radio service has this breadth of spectrum and technology.
- 4) The ability of amateur radio operators to adapt to adverse operating conditions, including the ability to improvise radio stations after being knocked off the air due to a disaster.

## **FCC Item 2. Impediments to enhanced Amateur Radio Service**

**communications.** The statute also requires that the study identify impediments to enhanced Amateur Radio Service communications and recommendations regarding the removal of such impediments.

### **A. Restrictions from Homeowners Associations banning all external antennas.**

A very serious and pervasive impediment to participation in the Amateur Radio Service is the widespread, almost universal presence of Restrictive Covenants that prevent the use of efficient radio antennas. These Restrictive Covenants are normally imposed by a Home Owners Association (HOA). An argument for these restrictive covenants is that they protect property values (presumably from the presence of unsightly antenna installations) and that they are a private contractual agreement entered into voluntarily. Unfortunately, the restrictive language relating to antennas has become so common and widespread, there is very little choice left to the potential home buyer. When virtually all of the recent housing developments have the same restrictions, it creates a situation where radio antennas are completely prohibited by the existence of these restrictions.

Here are some examples of restrictive covenants in El Paso County, Colorado:  
The Woodmoor Improvement Association covenants include this restriction: "Outside aerials or antennas will not be permitted."

<http://www.woodmoor.org/content/governance-docs.html>

Bent Tree Property Owners Association covenants include this clause: "Antennas: Attic antennas inside the house (as opposed to roof antennas) are effective, are less vulnerable to damage and are encouraged. Tall or otherwise prominent and visible antennas are prohibited." <http://www.btpoa.net/cov/Cov12.htm>

The Gleneagle Civic Association covenants include this clause: "No aerial or antenna for reception or transmission of radio or television or other electronic signals shall be maintained on the roof of any building nor shall they be maintained at any location so as to be visible from neighboring property or adjacent streets."  
<http://www.gleneaglehoa.org/Documents/Covenants/tabid/72/Default.aspx>

### **Discussion:**

These examples of covenant language are subject to interpretation but they largely exclude any kind of external radio antenna. This leaves the radio amateur with the option of antennas internal to their house, typically in the attic area. There are notable examples of radio amateurs making effective use of attic antennas but they are clearly a substantial compromise in performance. This poor performance comes from a variety of factors: loss due to roofing materials, loss due to snow/ice/rain on roof, loss and detuning due to metallic elements within the near field of the antenna and limitations to antenna height. There is a known, valid technical reason why satellite dishes, cellular sites, land mobile radio installations all use externally mounted antennas.

The performance of any antenna is greatly improved by getting it outside of the attic and free of any obstructions. In terms of preparing for a disaster or major incident, it is counterproductive to limit the ability to communicate by requiring antennas to be inside a building. There are a number of technologies that assist amateur radio operation on a routine basis and these can somewhat mitigate the limitations of an attic antenna. These technologies include the use of VHF/UHF repeater stations, remote base installations and internet linking (EchoLink, IRLP, D-STAR, etc.). However, in an emergency situation, these enhanced communication methods may not be available.

When faced with antenna restrictions, some amateur radio operators mitigate this limitation by setting up temporary stations (either at their residence or at a remote location), operating from their vehicle or operating portable handheld transceivers. The use of a temporary station practically limits the amount of operating time available and impedes the self-training aspect of the amateur radio service. Use of temporary stations also limits the ability of the radio amateur to participate in regular nets and communication exercises in support of emergency communications. Finally, relying on

temporary station installations during an emergency inserts an unnecessary delay in the availability of communications. Operating a radio station from a vehicle is an enjoyable activity, one that is very useful for support of disaster communications but it is a poor substitute for having capable radio communications from a residence. Antenna height, size and efficiency are inherently limited in a mobile installation. Finally, the use of handheld portable transceivers is largely dependent on the availability of repeaters, which may not be available during a disaster situation.

Much of the value of amateur radio during a major incident is the resilience provided by the variety of communication methods and frequencies available. Amateur radio performs best and is most resilient when an individual station does not depend on communications infrastructure such as repeaters and the internet. Preparing for emergency communications and providing the most positive regulatory environment implies maximizing the number of amateur radio stations having a basic ability to communicate independently.

Fortunately, the Commission has demonstrated the ability to take action on reasonable antenna restrictions. PRB-1 addressed the issue of overly restrictive regulation by local government and established the principle of *reasonable accommodation* of amateur operations. Another, even more relevant, example of FCC action is the Over-the-Air-Reception Rules (OTARD rules) adopted in 1996. The OTARD rules prohibit restrictions on a property owner or tenant's right to install, maintain or use an antenna to receive video programming from direct broadcast satellites (DBS), broadband radio services (formerly referred to as multichannel multipoint distribution services or MMDS) and television broadcast stations (TVBS). A similar approach can be applied to amateur radio operation.

The HOA's do have a legitimate interest in protecting the visual character of a neighborhood and protecting property values. However, this concern can be addressed using principles of *reasonable accommodation*. It is not reasonable to expect that every radio amateur should have the right to put up a 50-foot tower in a residential area, but a set of reasonable rules can be crafted to provide the basic ability to communicate effectively without compromising property values. (The OTARD rules are a strong precedent that this can be done.) Such rules would need to allow for an external antenna but could have reasonable height and size restrictions. Such a set of rules is in the public interest because it enables effective, flexible emergency communications for the local community.

## **B. Limitations on emissions in Part 97**

The FCC Rules that govern the Amateur Radio Service allow for specific emission types, as specified in Part 97.305. These emission types are more restrictive than necessary, as shown by the issue recently raised concerning the legality of a particular TDMA emission known as DMR (Digital Mobile Radio). This resulted in RM-11625, which has yet to be acted on by the Commission.

Basically, this sequence of events resulted in an unnecessary regulatory barrier (or the perception of a regulatory barrier) that produced a cloud of uncertainty over the adoption of a technically attractive radio technology already being deployed in commercial land mobile radio services. The Amateur Radio Service should have access to these new technologies without the need for Commission action.

The FCC should follow through with RM-11625 and clarify this regulatory uncertainty. More importantly, the FCC can avoid future regulatory confusion by expanding or eliminating the restriction on emission types listed in Part 97.305. As new technologies emerge over time, they will include emission types not anticipated by the existing emission designators and the same regulatory uncertainty is likely to reappear. Particular attention should be paid to enabling the use of any technology being deployed in similar radio services (e.g., Part 90). This issue requires further investigation and may require a separate rule making procedure.

## **C. Opportunity for Improved Integration of Amateur Radio into Federal Disaster Preparedness**

The FCC Rules Part 97.1 states that the purpose of the Amateur Radio Service includes “(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary noncommercial communication service, particularly with respect to providing emergency communications.”

There is the potential to improve the use of the Amateur Radio Service within the overall planning and organization of the federal government. A review of the FEMA web site ([www.fema.gov](http://www.fema.gov)) shows many examples of amateur radio being used in disaster relief. However, the web site is noticeably sparse concerning specific information on how FEMA is actively promoting and driving the use of amateur radio in all of its activities. At the local level, many governmental agencies have developed plans that integrate amateur radio operation via cooperation with local amateur groups. What is missing is a nationwide program and planning.

Similarly, the Community Emergency Response Teams (CERT) program (<http://www.citizencorps.gov/cert/index.shtm>) sometimes refers to the use of amateur radio to facilitate disaster communications. In specific cases, local CERT teams have partnered with amateur radio teams to develop appropriate communication plans. However, there is a great reliance on the unlicensed Family Radio Service (FRS), due to its low cost and no licensing requirement. These FRS radios have a role in CERT communications planning but their effectiveness is minimal compared to a capable amateur radio station.

Part 97 establishes RACES which is "A radio service using amateur stations for civil defense communications during periods of local, regional or national civil emergencies." However, these rules were written decades ago with an emphasis on "civil defense" and operating during times of conventional war. These rules do not reflect the current realities of today's homeland security and communication requirements.

One opportunity for the federal government is to give FCC Part 97 (RACES, in particular), FEMA operations and CERT a fresh look with these specific goals:

- a) Integrate the use of the Amateur Radio Service into all FEMA and CERT planning
- b) Establish clear goals for the use of the Amateur Radio Service in CERT.
- c) Establish training programs for effective radio communications that specifically include the use of the Amateur Radio Service during emergencies and disaster relief operations
- d) Review Part 97 and update the RACES rules to support this new vision of FEMA operations. Carefully consider what interoperability with other radio services is appropriate and desirable. For example, it may be appropriate to allow RACES stations to communicate with FRS stations under certain conditions.

## **Summary**

My comments are listed in order of priority. The single most important impediment facing the Amateur Radio Service concerning emergency communications is the widespread prohibition of effective radio antennas due to restrictive covenants. Resolving this issue via *reasonable accommodation* is the most important action the Commission can and should take.